

Claims:

1.-4. (canceled)

5. (new) A diagnostic system for a check valve of a positive displacement pump having a solid-borne sound sensor, comprising:

a first value of a first sound signal recorded in a closed state of a first valve;  
a second value of a second sound signal recorded in an open state of the second valve;

an evaluation device for determining the valve state of the first valve and the second valve; and

a signal output for displaying the fault if the deviation of the first value from the second value exceeds a pre-determinable threshold value.

6. (new) The diagnostic system in accordance with claim 5, wherein the first value is determined based on a last sound signal recorded in the closed state and the second value is determined based on a last sound signal recorded in the open state.

7. (new) The diagnostic system in accordance with claim 6, wherein the first valve is a check valve of the positive displacement pump and/or the second valve is a check valve of the positive displacement pump

8. (new) The diagnostic system in accordance with claim 7, wherein the evaluation device determines the valve state based on the first sound signal recorded and/or the second sound signal recorded.

9. (new) A diagnostic system for a check valve of a positive displacement pump having a solid-borne sound sensor, comprising:

a first value of a first sound signal recorded in a closed state of a valve;  
a second value of a second sound signal recorded in an open state of the valve;  
an evaluation device for determining the valve state of the valve; and  
a signal output for displaying the fault if the deviation of the first value from the second value exceeds a pre-determinable threshold value.

10. (new) The diagnostic system in accordance with claim 9, wherein the first value is determined based on a last sound signal recorded in the closed state and the second value is determined based on a last sound signal recorded in the open state.

11. (new) The diagnostic system in accordance with claim 10, wherein the valve is a check valve of the positive displacement pump.

12. (new) The diagnostic system in accordance with claim 11, wherein the evaluation device determines the valve state based on the first sound signal recorded and/or the second sound signal recorded.

13. (new) A diagnostic method for a check valve of a positive displacement pump having a solid-borne sound sensor, comprising:

determining a first sound signal recorded in the closed state of a first valve;  
determining a second sound signal recorded in the open state of a second valve,  
the determination near the time of the determination of the first sound signal; and  
displaying a fault via an output signal, the signal is output if the deviation of the first value from the second value exceeds a pre-determinable threshold value.

14. (new) The diagnostic method in accordance with claim 13, wherein the first valve and the second valve are the same valve.